AMERICAN ASSOCIATION OF BLOOD BANKS

Association Bulletin
#03-04

Date: April 17, 2003

To: AABB Members

From: Roger Y. Dodd, PhD
President

Karen Shoos Lipton, JD
Chief Executive Officer

Re: Mitigating the Risk of Transmission of Human West Nile Virus

This Association Bulletin is intended to provide further guidance to the blood community on efforts to mitigate the risk of transmission of West Nile virus (WNV) through blood transfusion in the event that cases of human WNV occur in 2003.

WNV is a flavivirus previously considered to be transmitted only by mosquitos. From May through December 2002, over 4000 cases of WNV-related human illness, mostly meningitis and encephalitis, were reported from thirty-nine states and the District of Columbia. Based on extensive investigation of human WNV cases involving transfusion, red blood cells (RBCs), Fresh Frozen Plasma, and platelets have been identified as the cause of WNV infection in at least 21 persons (12 of whom developed meningoencephalitis). The transfusion-related risk of infection with WNV during 2002 varied depending on geography and the timing of the mosquito-borne epidemic. Using clinical data from the 2002 epidemic, the Centers for Disease Control and Prevention (CDC) developed a mathematical model for the risk of infection from transfusion in selected geographic areas during the summer and fall of 2002.

Estimated Risk of Transfusion Transmission (per 10,000) during the WNV Epidemic Period, 2002

Region	Avg. Risk	95% CI	Max. Risk	95% CI
United States	0.36	0.35 – 0.37	1.55	1.43 – 1.76
Illinois	3.44	3.32 – 3.56	8.41	6.78 – 10.61
Louisiana	2.12	1.99 – 2.25	4.86	2.98 – 7.88
Michigan	4.03	3.89 – 4.17	10.46	8.48 – 13.20
Mississippi	2.41	2.25 – 2.58	6.56	3.84 – 10.85
Nebraska	4.76	4.17 – 5.36	8.51	4.35 – 15.66
Ohio	2.54	2.41 – 2.66	4.34	3.14 – 6.08

Peterson L. CDC Update on Investigation of West Nile Virus Transfusion-Transmitted Cases. Presented at the FDA Blood Products Advisory Committee Meeting, Bethesda, MD, March 13, 2003.

Public health authorities anticipate a recurrence of WNV outbreaks in 2003. However, previous epidemics involving WNV in other countries and those involving similar mosquito-borne flaviviruses, suggest that significant fluctuations occur in the number of persons infected from one mosquito season to the next. The initial appearance of WNV in the United States occurred on the East Coast during the summer of 1999. The virus then became dormant during the winter months, and reemerged during the summers of 2000 -2001, with a much larger epidemic in 2002. Westward migration of WNV activity occurred during 2002, with a wide geographic variation in infection rates. Based on previous years' experience, the risk of human WNV infection during 2003 is expected to occur from summer through the fall, peaking in late summer and early fall.

Actions Taken to Date to Reduce Transfusion Risk

Several actions have been taken to address issues relating to WNV. In October 2002, the Food and Drug Administration (FDA) issued Guidance for Industry, Recommendations for the Assessment of Donor Suitability and Blood and Blood Product Safety in Cases of Known or Suspected West Nile Virus Infection. This guidance provided instructions for donor management, product quarantine and retrieval, and notification of transfusion recipients. In December 2002, the blood banking community voluntarily withdrew selected frozen products that were collected in areas experiencing mosquito-borne transmission of WNV to humans and provided instructions for prioritization of use of quarantined products.

WNV Nucleic Acid Amplification Testing (NAT) Anticipated in July

Despite the unknown magnitude of a recurrent WNV epidemic in 2003, US Public Health Service officials, representatives of blood bank organizations, and blood donor screening test developers met periodically during the past six months to develop strategies for reducing the risk of transfusion-transmitted WNV. All agreed that a blood test for identifying infected blood donors would afford the most effective protection, because 80% of individuals with WNV are asymptomatic. The blood banking community, test developers, and the FDA are preparing to implement testing on an ambitious time line.

Test methodology will employ NAT. In order to expedite the implementation of testing, the FDA will allow national deployment of investigational tests, similar to the approach taken for NAT for human immunodeficiency virus (HIV) and hepatitis C virus. It is anticipated that after test implementation, all units released for transfusion will have been tested for WNV, with the exception of frozen plasma products from donations made earlier in the year prior to the onset of human WNV activity.

The current effort is aimed at wide-scale implementation of WNV NAT on or about July 1, 2003. Such testing will reduce, but not eliminate, the risk of transfusion transmission of WNV.

Implications for Transfusion Services *Prior to Test Availability*

The transfusion service is responsible for updating medical staff about transfusion risks associated with WNV, as well as informing them about the anticipated availability of a WNV test by July. Because the transfusion-transmitted WNV risk in 2002 varied widely with geography and time of year, it is not possible to quantify the risks for 2003. Development of further information relevant to ongoing risk estimates may be facilitated by transfusion services and blood collection facilities working closely with their state or local health departments. It should be noted that in 2002, the more severe outcomes of mosquito-borne WNV infection occurred in immunocompromised patients (particularly organ and stem cell transplant recipients; patients on immunosuppressive drugs; and patients with hematologic malignancies, myelodysplasia, and other advanced malignancies) and individuals over 65 years of age. Similar risk factors for severe disease would be anticipated for transfusion recipients. The 2002 transfusion-transmitted cases also included several pregnant women or women in the immediate postpartum period.

It is beyond the scope of this bulletin to recommend specific changes to local transfusion practice. Hospitals should make assessments of the risks of transfusion-transmitted WNV prior to the implementation of testing and weigh these risks against the benefits of transfusion. Because WNV infection has now been established as a risk of transfusion, hospitals should evaluate their process of informed consent for transfusion and decide whether any modification is needed. Measures to limit non-urgent transfusions that may be considered include offering patients the opportunity to delay elective surgery or elective medical transfusion or to make autologous donations. Any decision on the use of such measures should be made on the basis of local assessments of the risk of WNV infection in donors.

Implications for Blood Collection Facilities *Prior to Test Availability*

Blood collection facilities are currently stockpiling frozen plasma and cryoprecipitate for transfusion in the event that human cases of WNV occur in their geographic area before testing becomes available. It is appropriate to continue this activity until human WNV infections occur in a given geographic area. Despite the need to provide blood with minimal risk for WNV, it does not appear feasible to discontinue collection of labile blood components (RBCs and platelets) in large areas experiencing human WNV infections. Prior to test availability, blood collection facilities may need to work with the local and state health departments and/or the CDC to identify areas of high risk and explore options to adjust collection plans within those areas, where feasible. It is important to recognize that the lifesaving benefits of ***medically necessary transfusion*** will offset the risk of transfusion-transmitted WNV infection.

At this time the AABB is not aware of any states that require the reporting, by name, of asymptomatic WNV NAT-positive donors to public health authorities. However, blood collection facilities are advised to review relevant policies about reporting with their state health departments. The blood community has agreed to share aggregate data from donor screening with public health authorities, which will assist in monitoring the epidemic nationwide.

Evaluation of Potential Transfusion-Transmitted WNV Cases
In 2002, the CDC solicited reports of possible transfusion-transmitted WNV and initiated case investigations in collaboration with blood collection facilities and transfusion services. In 2003, clinicians should be encouraged to report to the hospital transfusion service suspected cases of WNV occurring within 28 days after transfusion. Transfusion services should inform the blood collection facility in a manner similar to reporting suspected posttransfusion hepatitis and HIV cases. Cases of possible transfusion-transmitted WNV infection should also be reported to state health departments, as required in individual jurisdictions. Conversely, it is possible that blood collection facilities and transfusion services will receive such reports from state health departments.

The CDC has stated that it will not be actively involved in evaluating suspected transfusion-transmitted WNV cases following NAT implementation. The AABB is currently working with the CDC to develop suggested protocols that can be followed for investigating such cases. These protocols will be shared at a later date.

Evaluation of Donation Information from West Nile Patients
As of the date of publication of this Association Bulletin, it appears that the public health ArboNet surveillance system will question patients with WNV infection about blood donation within the previous two weeks. Blood collection facilities are advised to communicate with their county and state health departments to establish mechanisms to obtain such donation information in a timely matter in order to conduct product quarantine and retrieval.

Conclusions
As with any new test, implementation of WNV NAT will involve many challenges. Transfusion services should expect increases in component withdrawals related to test results, illness-related postdonation information, or other unanticipated events.

Transfusion services are advised to keep in mind that when blood transfusion is medically indicated, the benefits of receiving transfusion outweigh the risks of contracting WNV from transfusion.